VS. UniSystem™

KIT MANUAL

Nintendo®

FOR INSTALLATION IN

PAC-MAN™* AND MS. PAC-MAN™*

UPRIGHT VIDEO GAME CABINETS

WARNING

If the replacement parts and components in this VS. UniSystem™ kit are not installed exactly as instructed herein, there may be radio frequency interference created in violation of F.C.C. class A standards.

WARNING

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a class A computing device pursuant to subpart J of part 15 of F.C.C. rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference; in which case, the user at his own expense will be required to take whatever measures may be required to correct the interference.

WARNING

This kit should only be installed by a qualified service technician.

TABLE OF CONTENTS

I. INTRODUCTION

VS. UniSystem™ Kit

The **VS. UniSystem™** kit enables you to change any Pac-Man* or Ms. Pac-Man* into a VS. UniSystem™ which will use any non-interactive VS.-Pak®.

Before you begin, be sure you are properly prepared. Make certain you have selected the proper VS. UniSystem™ kit for the particular game you are replacing. **Thoroughly read this instruction manual to familiarize yourself with the proper procedures.** Make certain that you have all the tools necessary to complete the process.

This kit should only be installed by a qualified service technician.

If you have any questions, please call Nintendo Service at 1-(800)-633-3236.

*trademarks of Bally Midway Mfg. Co.

II. CONTENTS OF KIT

Parts Name	Quantity	Remarks
MDS-CPU P.C. Board Assy	1	without EPROM's and custom chip
AV-01 P.C. Board Assy	1	includes four (4) OL-E3 P.C. Board spacers and four (4) M-3 × 8 machine screws
Power Transformer Assy PT-1321A	1	
Power Supply Unit PP-1300A	1	
MGS-PM Front Screen	1	
MGS-PM Name Plate	1	
MGS-PM Control Panel Assy	1	
MGS-UP Side Decal	2	
MGS-PM VS. UniSystem™ Kit Manual	1	
062 Shield Cover Complete Assy	1	with short 36P and 44P harnesses
054 Shield Cage	1	
072-PM-36P-44P Edge Harness Assy	1	
072-PM-3P Speaker Harness	1	
072-PM-6P Video Harness	1	
072-PM-4P 600 Service Harness	1	
072-PM-01 Ground Harness	1	
072-PM-02 Ground Wire	1	for speaker
072-PM Monitor Mounting Bracket	2	
072-PM Front Screen Bracket (Upper)	1	
072-PM Front Screen Bracket (Lower)	1	
072-PM Front Screen Support	2	
MGS-PM Hole Template	1	
Velcro Dot Hook	4	
Velcro Dot Loop	4	
072 Monitor Bezel	1	

II. CONTENTS OF KIT (continued)

Parts Name	Quantity	Remarks
072-PM Operation Panel Support	2	
072-PM Operation Panel Retainer	1	
MGSK-P Serial Number Plate	1	
FCC Class A Label	1	
FBI Sticker	1	
Power Switch Caution Label	1	
M6 × 30 Carriage Bolt	6	for mounting monitor brackets
M6 Cap Nut	6	for mounting monitor brackets
Machine Screw M4 × 10	3	for mounting power supply and ground
Round Head Wood Screw 3.5 × 13	48	9 pcs FCC cage 5 pcs front screen bracket (U) 5 pcs front screen bracket (L) 8 pcs front screen supports 6 pcs operation panel supports 4 pcs operation panel retainer 5 pcs 072-PM-36P-44P edge harness assy. Screw tie downs 4 pcs AV-01 PC Board 2 pcs extra
Round Head Wood Screw 3.1 × 10	4	for mounting serial number plate
Round Head Wood Screw 3.8 × 16	4	for mounting PT-1321A transformer
M5 Flat Washer	4	for mounting monitor
M5 Cap Nut	4	for mounting monitor
T18R Cable Tie	2	For video cable
Wire Nut	3	for speaker harness and ground modification

III. LIST OF TOOLS NEEDED

Flat Head Screw Driver

Phillips Head Screw Driver

10mm Nut Driver

11/32" Nut Driver

Crescent Wrench

1/4" Drill Bit

Electric Reversing Drill

Phillips Bit for Drill

Staple Gun

Alcohol/Cleaner

Wire Cutters

Star Driver or Vise Grips

Solder Iron

IV. REPLACEMENT PROCESS

1. Removal of Monitor

   A. Remove the old control panel, front screen and name plate.
   Note: Remove the ground strap from the control panel if one is attached.
   B. Remove the old front screen retainer (upper).
   C. Remove the plastic monitor bezel.
   D. Remove the monitor side support located near the back door.
   E. Disconnect all wire harnesses from the monitor (video, power, ground).
   F. Remove the monitor.

2. Bezel Supports Removal – Ms. Pac-Man* Only

   A. Remove bezel supports from the monitor frame one at a time, retightening monitor frame bolts after removal of each support.
   Note: Be careful to tighten the bolts so the frame is in the same position as before.

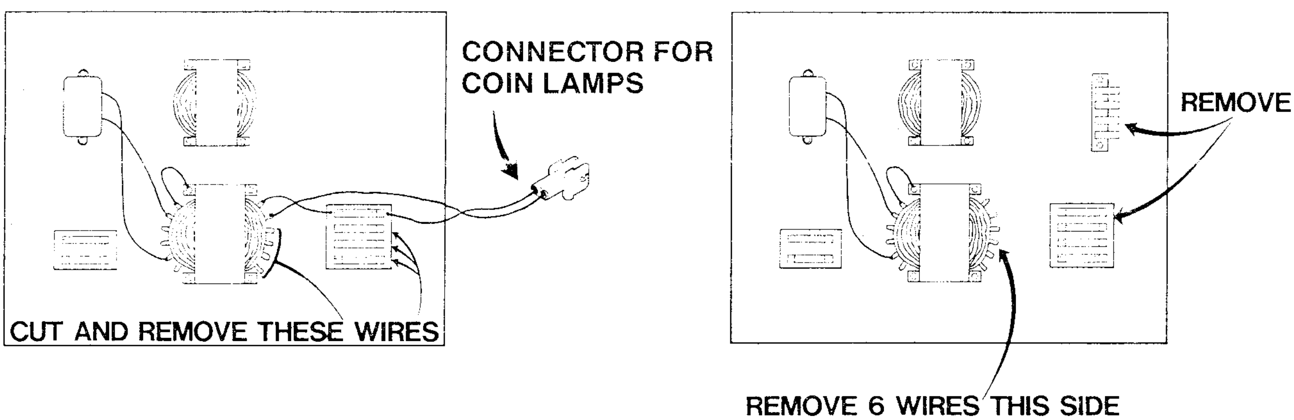
3. Remove the Monitor Mounting Supports

   A. If the game has metal monitor supports, remove them from the side panels.
   B. If the game has wooden supports that are wider than 1 1/4", cut a notch into the wood as illustrated. (See Illustration 1-2.) The notch should be 3/8" deep. This will allow the clearance for the monitor frame when mounted in a horizontal position.

4. Remove Old P.C. Board and Main Wire Harness

   A. Remove the main wire harness and cut wires from power transformer for Pac-Man*. For Ms. Pac-Man* cut wires between fuse block and transformer. (See Illustration 1-1.)

   Note: Do not remove primary wires to interlockswitch, power switch or lamp on right side of cabinet.



Ms. Pac-Man* 1-1 Pac-Man*

*trademarks of Bally Midway Mfg. Co.

5. Mounting Monitor and Front Screen Supports

A. Using template provided, mark and drill three (3) 1/4″ holes for the monitor support brackets in both cabinet side panels.
Note: Corner of template should be positioned as shown below. (See Illustration 1-2.)

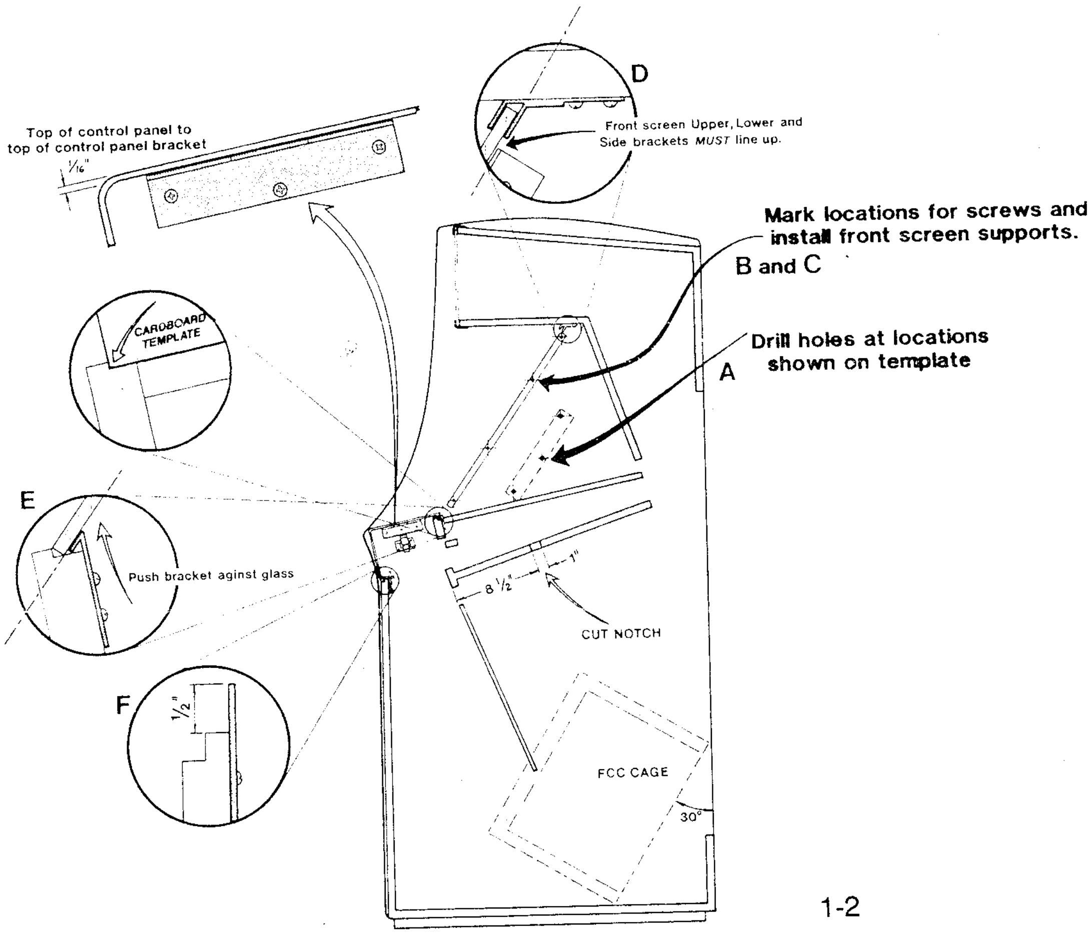
B. Using template provided, mark four (4) screw locations for the front screen supports.
Note: There are different hole locations for Pac-Man* and Ms. Pac-Man* on the template.

C. Install front screen supports using eight (8) 3.5 × 13 round head screws. (See Illustration 1-2.)

D. Install front screen retainer upper using five (5) 3.5 × 13 round head screws.
Note: Must be in line with the front screen supports.

E. Install the front screen retainer lower using five (5) 3.5 × 13 round head screws.
Note: Slots are used to slide retainer against front screen before mounting permanently. (See Illustration 1-2.)

F. Install the control panel retainer. (See Illustration 1-2.)
Note: Mount in center of cabinet 1/2″ above cabinet operation panel support.



1-2

*trademarks of Bally Midway Mfg. Co.

6. Side Sticker Application

   A. At this time, paint the cabinet a light gray, **MAKING SURE TO REMOVE ALL PREVIOUS TRADEMARKS, LOGOS, AND ARTWORK ON THE CABINET.**
   B. Install the side stickers. (See side sticker application sheet Page 13.)

7. Installation of Monitor Mounting Brackets

   A. Install the monitor mounting brackets using six (6) M6 × 30 carriage bolts and M6 cap nuts. (See Illustration.)

8. Installation of Monitor

   A. Reinstall monitor in horizontal position using the four (4) M5 flat washers and M5 cap nuts and reconnect the ground harness.
   IMPORTANT: Hazardous condition will result if the ground wire to the monitor is not reconnected.

9. Installation of FCC Cage

   A. Before installing FCC Cage move wooden transformer base to the right of the cabinet as shown in the photograph. (See Illustration 1-3.)
   B. Install the FCC cage at the angle shown using nine (9) 3.5 × 13 round head wood screws. (See Illustration 1-2.) The FCC cage must be mounted on left side of the cabinet as you look at the back of the cabinet. (See Illustration 1-3.)

10. Installation of Power Transformer Assembly and Power Supply

   A. Screw down power supply to mounting bracket on side of FCC cage using two (2) M4 × 10 machine screws. (See Illustration 1-3.)
   B. Fasten new power transformer assembly to bottom of cabinet in lcoation shown using four (4) 3.8 × 16 round head screws. (See Illustration 1-3.)

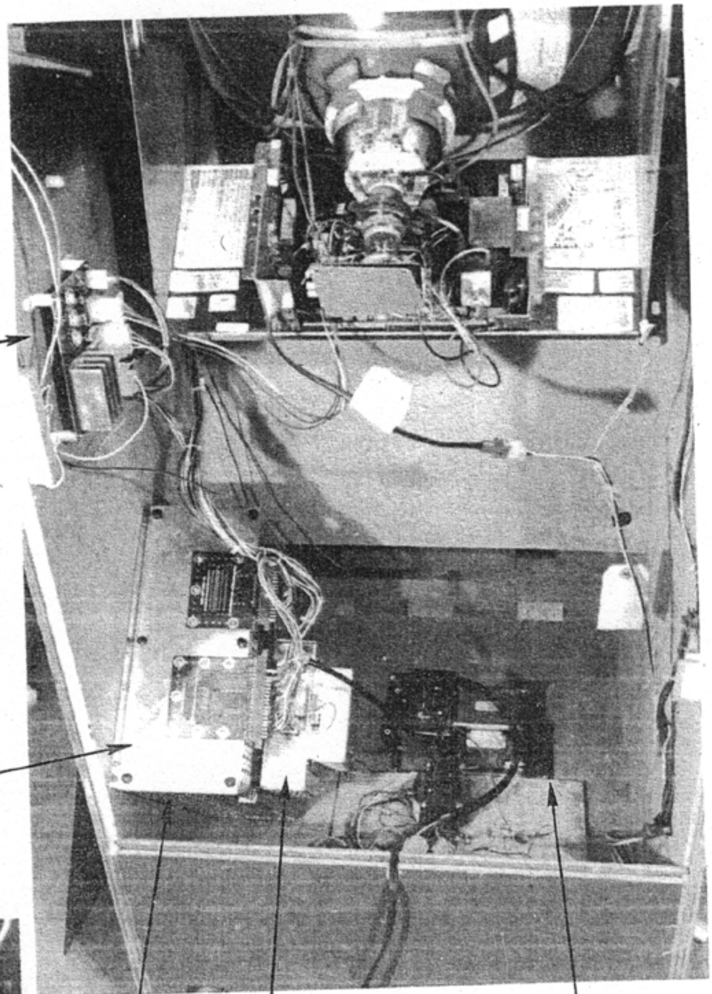
11. Installation of AV-01 Interface P.C. Board Assembly

   A. Install AV-01 interface p.c. board assembly to the side panel approximately 12 inches above the FCC cage, using four (4) 3.5 × 13 round head wood screws. (See Illustration 1-3.) **Note: Feet should point out.**

12. Installation of MDS P.C. Board and Shield Cover Assembly

   A. Connect short 44 pin and 36 pin harnesses from the shield cover assy to the MDS p.c. board.
   B. Slide MDS p.c. board into the slot in FCC cage.
   C. Fasten the shield cover assy into place using the push-in clasps.

MS. PAC-MAN*



AV-01
PC BOARD

SHIELD
COVER
ASSY

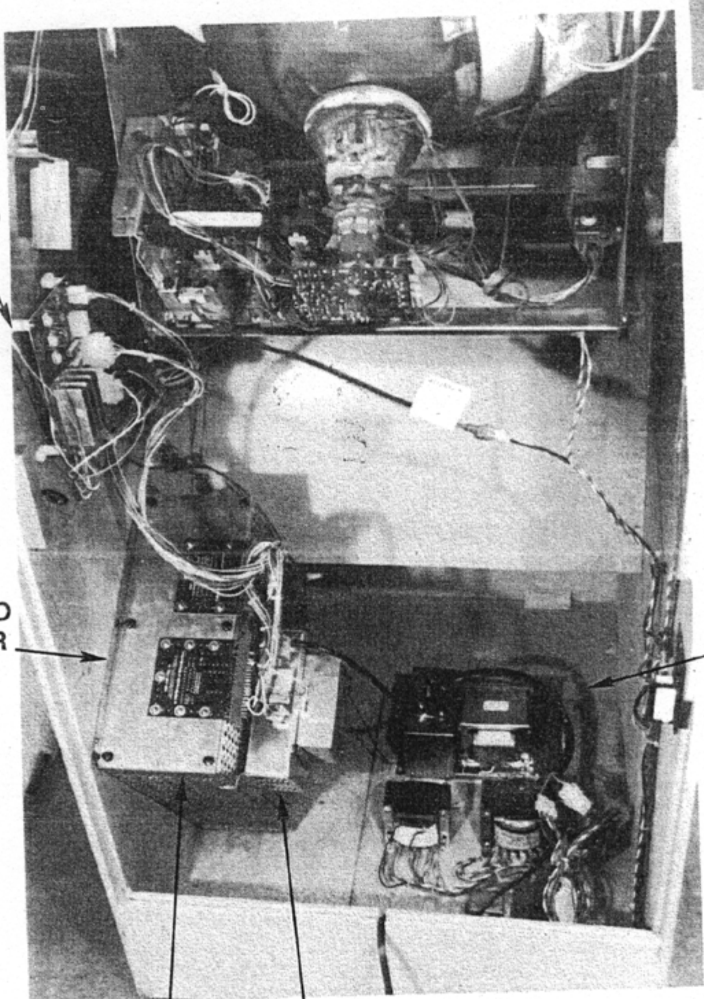
FCC
CAGE

PP-1300A
POWER SUPPLY

NEW POWER
TRANFORMER
(PT1321A)

1-3

PAC-MAN*



AV-01
PC
BOARD

SHIELD
COVER
ASSY

NEW POWER
TRANFORMER
(PT1321A)

FCC
CAGE

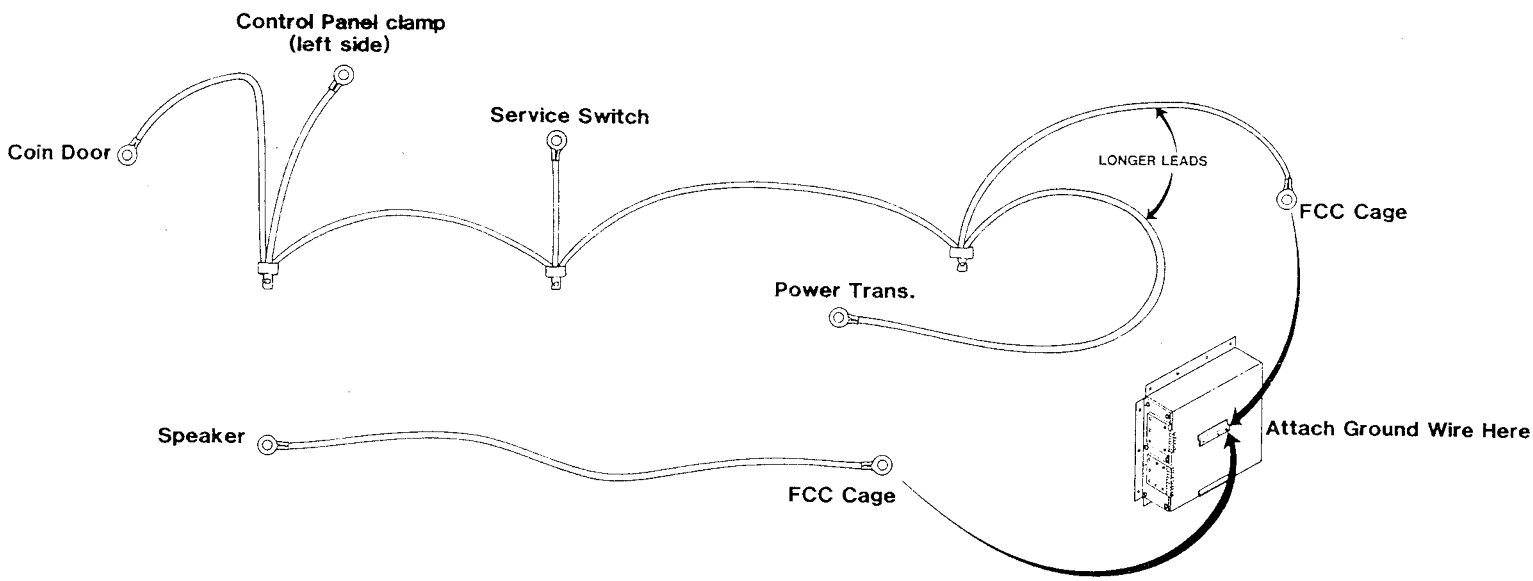
PP-1300A
POWER SUPPLY

1-3

*trademarks of Bally Midway Mfg. Co.

13. Installation of Ground Cable and Speaker Ground Cable

A. Fasten the speaker ground cable to one of the speaker mounting screws. (See Illustration 1-4.)
B. Choose one of the longer leads on the main ground harness and fasten to the FCC shield cage along with the other end of speaker ground cable. (Use the one (1) remaining M4 × 10 machine screw.) (See Illustration 1-4.)
C. Fasten the other long lead to one of the 3.8 × 16 mounting screws on the transformer base. (See Illustration 1-4.)
D. Fasten the other three leads to a good metal contact on the coin door, operation panel clamp and service switch. (See Illustration 1-4.)



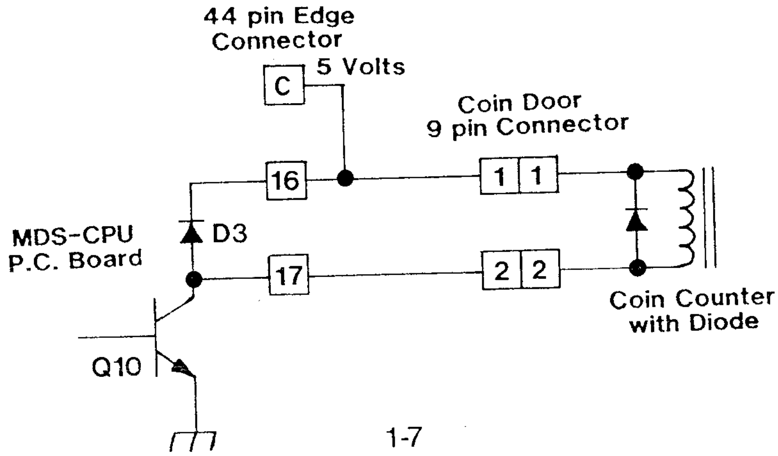
1-4

14. Installation of Main Wire Harness and Power Transformer

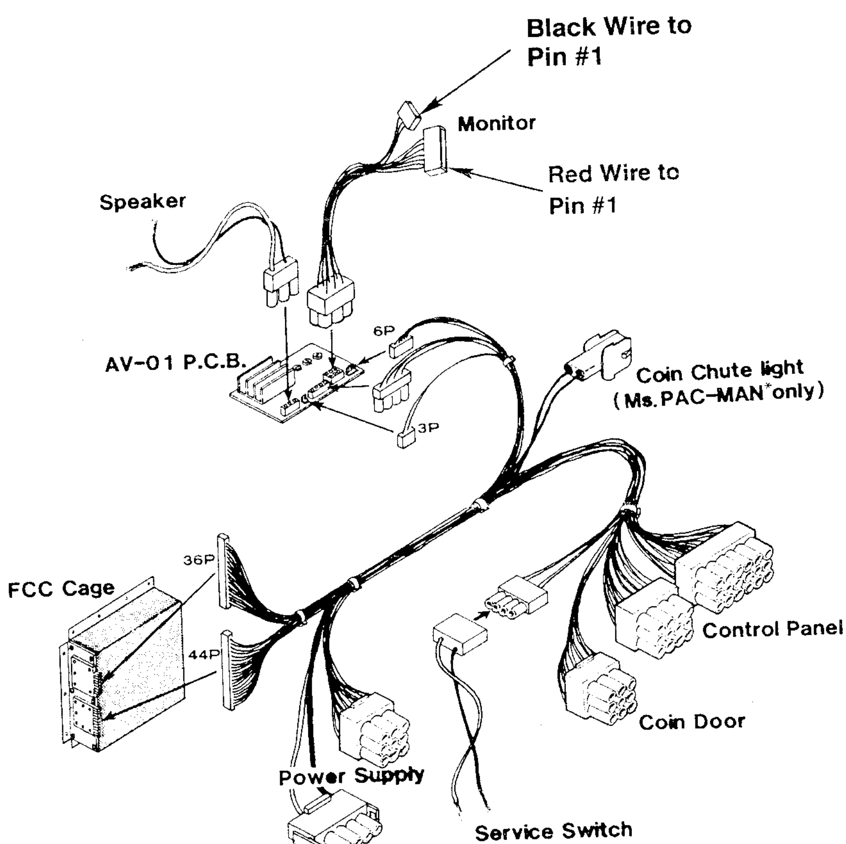
A. Connect the Main Harness as shown. (See Illustration 1-5.)
B. Solder the service harness to the service switch before connecting to the main harness.
C. Connect the speaker harness to the speaker by cutting existing speaker wire and using the wire nuts provided or solder directly to the speaker.
D. Connect the power transformer to the power supply and existing power harness connectors. (See Illustration 1-6.)
E. Using five (5) 3.5 × 13 round head screws, fasten the main wire harness to the side panel through the screw down cable ties.

IMPORTANT: If the game you are converting has a coin counter with an internal diode, be sure to connect it as shown. Counters with diodes have designations on the case to that effect. (See Illustration 1-7.)

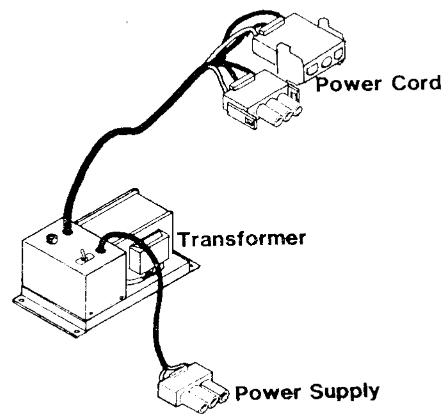
NOTE: If the coin counter is connected backwards, damage will result to the counter and the MDS-CPU p.c. board.



1-7



1-5



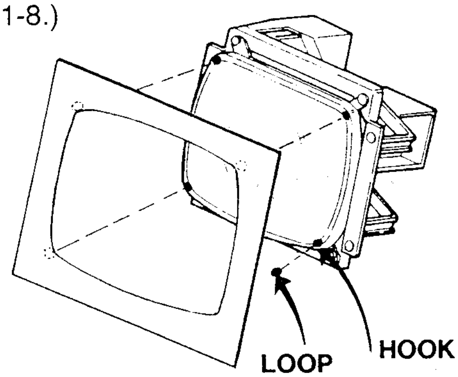
1-6

15. Installation Monitor Bezel

A. Attach the four (4) velcro dot hooks to the monitor corners. Then attach the four (4) velcro dot loops to the hooks. Peel off the adhesive backing on the velcro dot loops and attach the monitor bezel. (See Illustration 1-8.)

16. Installation of the Front Screen and Name Plate

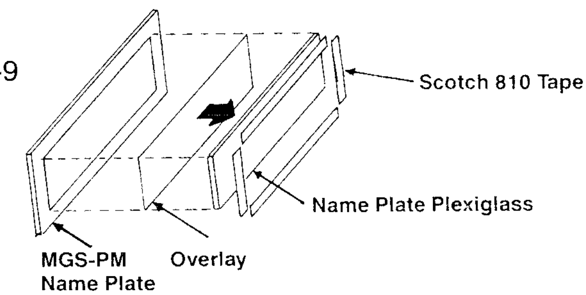
1-8



A. Install the new name plate.
Note: This name plate allows a standard VS. UniSystem™ name plate provided in a VS.-Pak® to be taped on the back with Scotch 810 Magic Transparent tape. (Not provided.) (Available at any office supply store.)
Note: The overlay should be adhered to the name plate plexiglass provided in the VS.-Pak®. (See Illustration 1-9.)

B. Install the front screen.

1-9



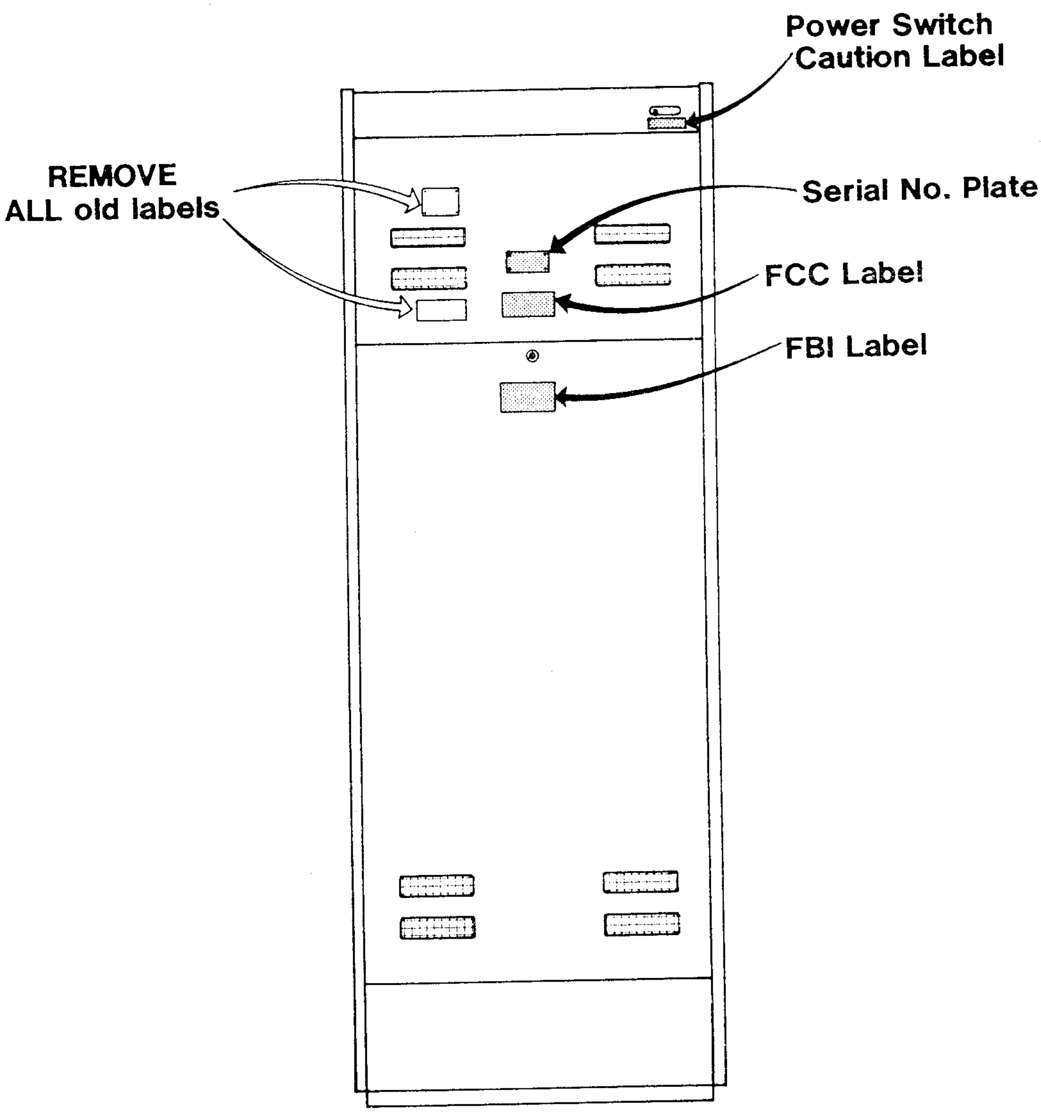
17. Installation of New Control Panel and Operation Panel Supports

A. If you are converting Ms. Pac-Man*, remove the old control panel side supports and save the old operation panel clamps. Reinstall the old clamps after installing the new operation panel supports.
B. Place the new control panel into the game and draw a line where the top of the control panel meets the side panel wall. (See Illustration 1-2.)
C. Measure down from this line 1/16″ and mount the new control panel supports parallel to the upper line. (See Illustration 1-2.)
D. If you are converting Ms. Pac-Man*, remount the control panel clamps directly to the wooden side panel.
E. Connect operation panel to the main harness connectors and clamp down.
F. If necessary, use locking pliers to bend the control panel clamps in or out to get the proper tension to secure the control panel.

18. Attach Serial Number Plate, FCC Class A Label, FBI Sticker, and Power Switch Warning Label

A. Remove all old labels and serial number plates.
B. Using four (4) 3.1 × 10 round head screws provided, attach the new serial number plate in location shown. (See Illustration 1-10.)
C. Adhere the FCC Class A label and staple all four (4) corners in the locations shown. (See Illustration 1-10.)
D. Adhere the new FBI sticker and staple all four (4) corners in the locations shown. (See Illustration 1-10.)
E. Adhere the power switch caution label to the location shown and staple all four corners. (See Illustration 1-10.)

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Power Switch
Caution Label
REMOVE
ALL old labels
Serial No. Plate
FCC Label
FBI Label

1-10

Side Decal Application

Step 1.

Start by peeling the protective backing "A" down about 6 inches from the top.

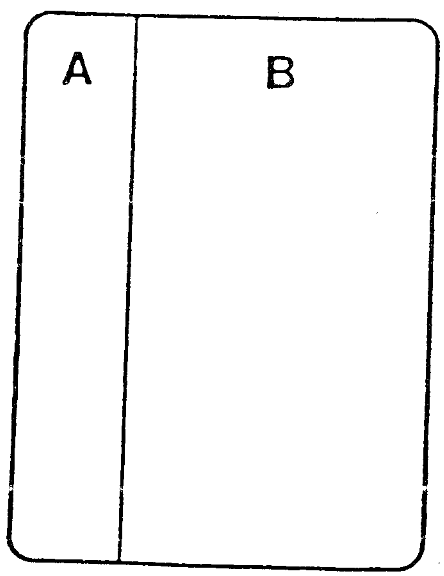
Place decal in desired position. Pull down slowly the remainder of the protective backing of "A."

While doing this, use a soft cloth to smooth decal onto side board, moving from top to bottom of decal.

Step 2.

Fold remaining decal back, exposing the unprinted side. Begin to peel protective backing "B" from center to right hand side "slowly."

Using soft cloth smooth decal onto side panel by running hand from top to bottom of decal, moving outward to the right hand side.

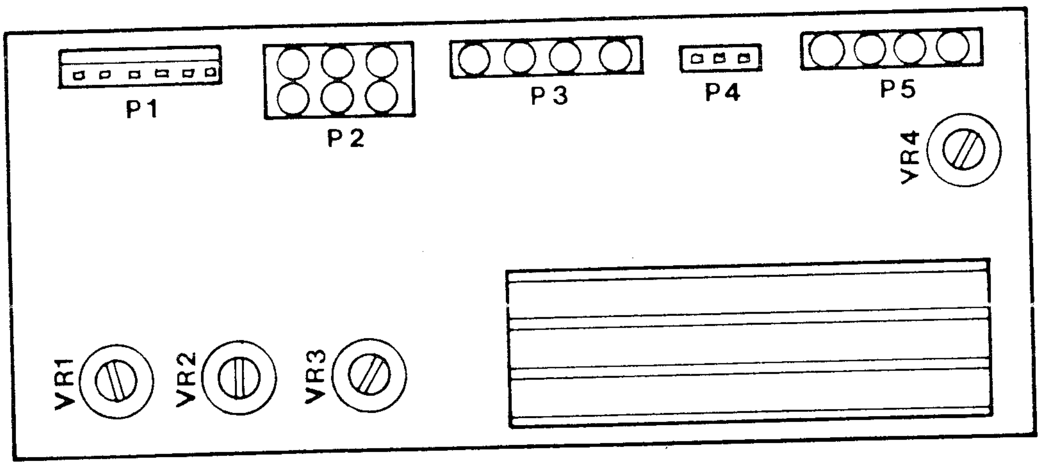


Front View

V. FINAL CHECK SHEET AND ADJUSTMENTS

- ☐ 1. FBI sticker installed (MANDATORY)
- ☐ 2. New serial number plate installed (MANDATORY)
- ☐ 3. New FCC label installed (MANDATORY)
- ☐ 4. Power switch caution label installed (MANDATORY)
- ☐ 5. P.C. Board adjustments made
  (see P.C. Board adjustments page 15)
- ☐ 6. Monitor adjustments made
  (refer to service manual)
- ☐ 7. AV-01 adjustments made
- ☐ 8. Coins give credit
- ☐ 9. Controls on operation panel functioning
- ☐ 10. Sound checked
- ☐ 11. Nameplate lamp is functioning
- ☐ 12. All previous trademarks, logos and art work have been removed

AV-01 ADJUSTMENTS



VR1, VR2 and VR3 adjust color level output of interface p.c. board. VR4 adjusts volume level output of interface p.c. board.

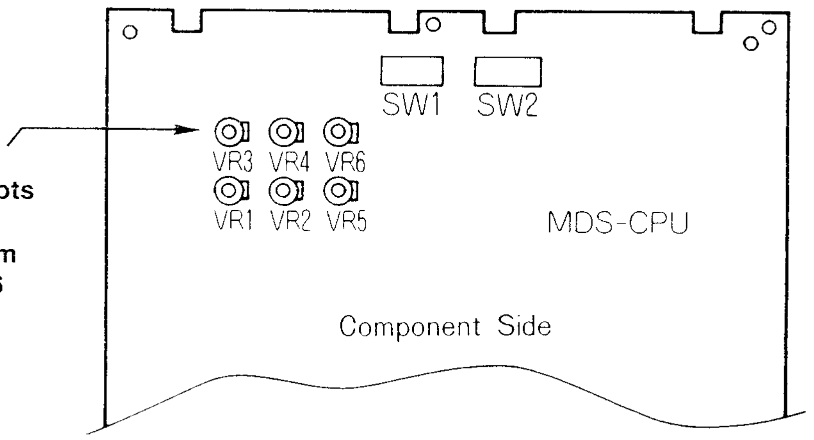
Adjustments

After powering up the game, you will probably find that the screen's horizontal width is too narrow and the vertical height is too small. To make adjustment to the horizontal width and vertical height, refer to the service manual for your particular monitor.

MDS P.C. Board

NOTE: Only SW2 is used for VS. UniSystem™ games

NOTE:
Only these pots are used for VS. Unisystem VR3 VR4 VR6



Cautions: (1) Since the Dip Switch settings (SW2 only) may be changed by new game software, refer to the new game instructions in Operation Manual for VS. Pak®.

(2) Do not touch the fixed variable resistors (VR1, VR2, VR3, VR4, VR5, and VR6), as they have already been preset and do not need adjustment.

(3) If, however, color does not look correct, VR3, VR4, and VR6 may be adjusted in addition to the color adjustments on your monitor and on the AV-01 PC Board.

NOTE: After all adjustments have been made, be sure to fasten FCC cover securely.

VII. REORDER PARTS LIST

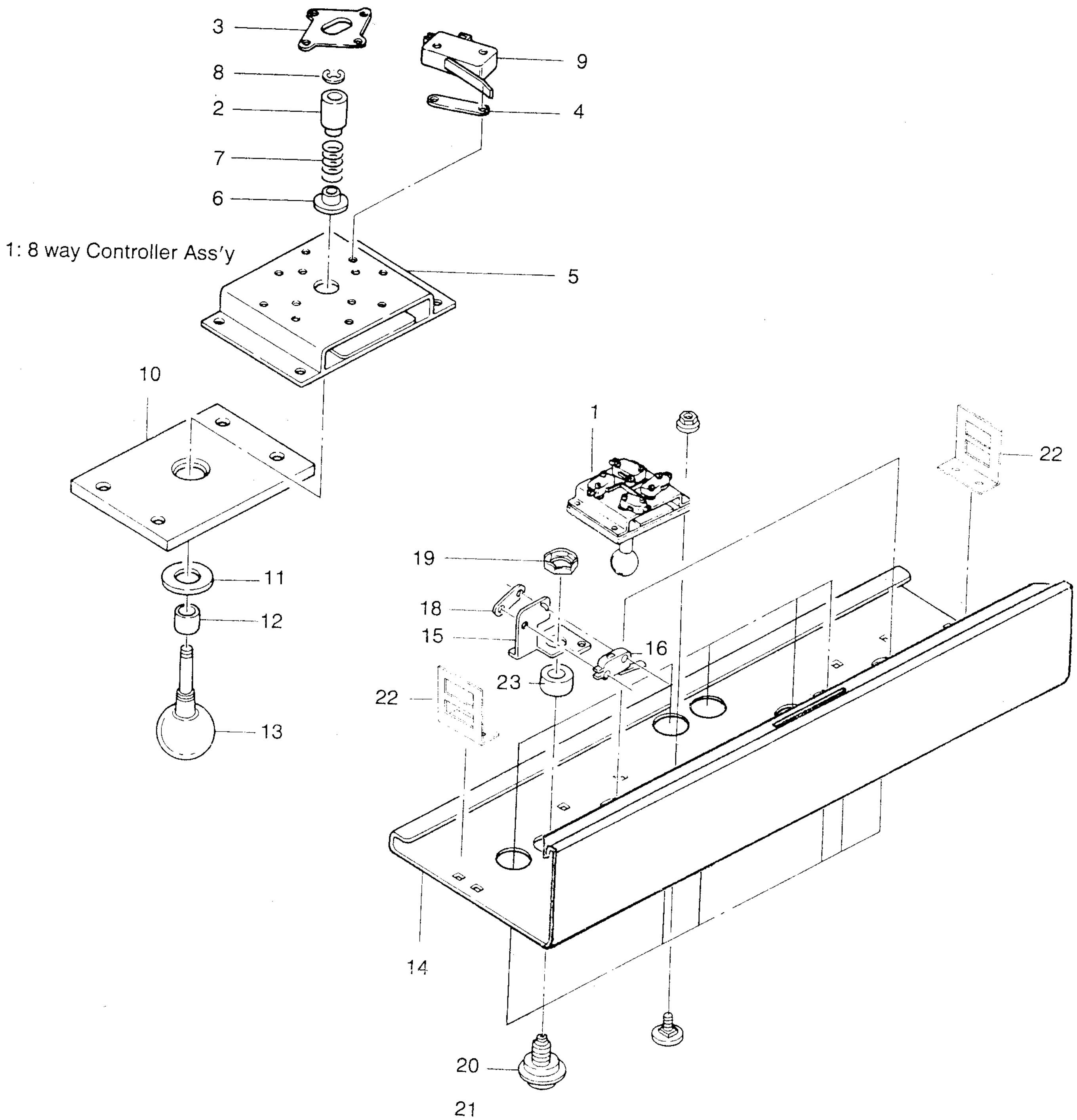
BODY PARTS

PART NO.	DESCRIPTION
MGSP-01-23	072-PM Front Screen
MGSP-01-24	072-PM Name Plate
MDST-21-11	MDS-CPU P.C. Board Assy.
MGSP-AV-01	Audio/Video Interface P.C. Board Assy.
MGSU-11-23	Side Decal MGS-UP
MGSP-23-61	VS. UniSystem™ Kit Manual – PM
CHPU-01-01-10	054 Shield Cage
MDSU-01-01-11	062 Shield Cage Cover
MDSU-01-01-12	062-44P FCC P.C. Board Assy.
MDSU-01-01-13	062-36P FCC P.C. Board Assy.
MGSP-01-50	072-PM Monitor Mounting Bracket
MGSP-01-69	072-PM Front Screen Bracket (Upper)
MGSP-01-53	072-PM Front Screen Bracket (Lower)
MGSP-11-10	072-PM Front Screen Support
MGSP-11-11	072-PM Operation Panel Support
MGSP-01-48	072-PM Operation Panel Retainer
MGSP-09-01	Power Transformer Unit PT-1321A
MGSP-08-00	Power Supply Unit PP-1300A
MGSP-01-67	072-PM Monitor Bezel

Operation Panel Assembly

ITEM	PART NO.	DESCRIPTION
1	MDST-14-12	8 Way Control Lever Assembly
2	TKGU-23-21	Switch Collar
3	TNX-23-18	8 Way Guide Plate
4	TKGU-23-17	Switch Spacer
5	TKGU-23-16	Bearing Brkt
6	TKGU-23-20	Spring Stopper
7	TKGU-23-22	Lever Spring
8	TKGU-23-23	E-Ring
9	TKGU-23-13	Micro Switch
10	TMAU-12-15	Lever Plate
11	TMAU-12-14	Control Knob Plate
12	TMAU-12-16	Control Knob Collar 8L
13	TMAU-11-18	Knob with Shaft 80.5L
14	MGSP-01-22	Operation Panel Base w/Overlay
15	TKGU-23-12	Switch Button Bracket
16	TMAU-34-18	Micro Switch VL 12L (Straight)
17	MDSU-12-17	Black Sponge, 2 × 10 × 580L
18	TKGU-23-26	Nut Plate
19	TKGU-23-34	Pal Nut M16
20	MDST-12-21	Button Assembly (Black)
21	MDST-12-17	Button Assembly (Crimson)
22	MGSP-01-31	Operation Panel Fastener 072K-P2
23	TMAU-12-18	Collar – 34 × 28 × 7H
24	MDST-12-24	Button Assembly (Light Blue)
25	MDST-12-27	Button Assembly (Green)

VS. UniSystem™ Operation Panel Assembly Parts (Upright)



5-3

Operation Panel Assembly

WIRING HARNESSES

PART NO.	DESCRIPTION
MGSP-41-15	072-PM-36P-44P Main Edge Harness Assy
MGSP-13-01	072-PM-3P Speaker Harness
MGSP-13-02	072-PM-6P Video Harness
MGSP-13-03	072-PM Ground Harness
MGSP-13-04	072-PM Ground Wire
MGSP-13-05	072-PM-4P-600 Service Harness
MDSU-41-11	36P-062 FCC Harness
MDSU-41-12	44P-062 FCC Harness
MDSU-42-11	C-062-15P Main Switch Harness
MDSU-42-12	C-062-12P Sub Switch Harness

MDS P.C. Board Assembly (continued)

PART NO.	DESCRIPTION	(Reference Designations and Locations)
MDST-21-49	10K Ω 1/4W ± 5% Resistor	(R3, R5, R7, R16, R18, R19, R21, R33, R56 R63, R75, R82, R83, R85, R86, R120)
MDST-21-50	12K Ω 1/4 W ± 5% Resistor	(R76, R96, R98)
MDST-21-51	20K Ω 1/4W ± 5% Resistor	(R94, R99)
MDST-21-52	33K Ω 1/4W ± 5% Resistor	(R1, R2)
MDST-21-53	100K Ω 1/4W ± 5% Resistor	(R10, R35, R84, R103, R121)
MDST-21-54	150K Ω 1/4W ± 5% Resistor	(R74, R118)
MDST-21-55	360K Ω 1/4 W ± 5% Resistor	(R107, R114)
MDST-21-56	750K Ω 1/4W ± 5% Resistor	(R101, R108, R109, R110, R115, R116)
MDST-21-57	1M Ω 1/4W ± 5% Resistor	(R102, R106, R112, R117)
MDST-21-58	1.8M Ω 1/4W ± 5% Resistor	(R90, R105)
MDST-21-59	2.2M Ω 1/4W ± 5% Resistor	(R81, R87, R100, R104)
MDST-21-60	1K Ω × 8 Series Resistor Array	(RM1, RM2, RM5, RM8, RM11, RM14, RM17)
MDST-21-61	68 Ω × 4 Parallel Resistor Array	(RM3, RM4, RM6, RM7, RM9, RM10, RM12, RM13, RM15, RM16)
MDST-21-62	33pF 50V Ceramic Disc Capacitor	(C35, C91, C92)
MDST-21-63	68pF 50V Ceramic Disc Capacitor	(C25, C86)
MDST-21-64	100pF 50V Ceramic Disc Capacitor	(C38, C42, C43, C46)
MDST-21-65	220pF 50V Ceramic Disc Capacitor	(C26 ~ 29, C34, C45)
MDST-21-66	0.01 μ F 50V Ceramic Disc Capacitor	(C9, C10, C89, C90)
MDST-21-67	0.1 μ F 25V Ceramic Disc Capacitor	(C100 ~ C178)
MDST-21-68	0.2 μ F 12V Ceramic Disc Capacitor	(C4, C12)
MDST-21-69	0.047 μ F 50V Film Capacitor	(C37, C39, C40, C44)
MDST-21-70	3.3 μ F 16V Al. Electrolytic Capacitor	(C15 ~ C18, C31, C32)
MDST-21-71	10 μ F 16V Al. Electrolytic Capacitor	(C3, C5, C6, C11, C13, C14, C19 ~ C24, C30, C33, C36, C41, C47 ~ C85)
MDST-21-72	47 μ F 16V Al. Electrolvtic Capacitor	(C2)
MDST-21-73	100 μ F 16V Al. Electrolytic Capacitor	(C1)
MDST-21-74	100 μ F 25V Al. Electrolytic Capacitor	(C8)
MDST-21-75	470 μ F 16V Al. Electrolytic Capacitor	(C7, C87, C88)
MDST-21-76	500 Ω Variable Resistor. Red Cap	(VR1, VR3)
MDST-21-77	500 Ω Variable Resistor. Green Cap	(VR2, VR4)
MDST-21-78	500 Ω Variable Resistor. Blue Cap	(VR5, VR6)
MDST-21-79	21.47727MHz Crystal	(X1)
MDST-21-80	8 position dip switch	(SW1, SW2)
MDST-21-81	28P IC socket	(1A, 1B, 1C, 1D, 2A, 6A, 6B, 6C, 6D, 8A, 8B)
MDST-21-82	40P IC socket	(2F, 2J, 8F, 8J)
MDST-21-83	Type 32-4 (UM3 × 2) Battery Case	
MDST-21-84	Bolt with washer M2.6	
MDST-21-85	Flat washer M2.6	
MDST-21-86	Nut Plate M2.6	
MDST-21-87	Dry Battery "AA"	
	T18L Beaded tie	

MDS P.C. Board Assembly

PART NO.	DESCRIPTION (Reference Designations and Locations)	
MDST-21-11	P.C. Board Assembly	
MDST-21-12	2A03 Microprocessor	(2J,8J)
MDST-21-13	HM6116 2k x 8bit Static RAM, 250ns	(6E)
MDST-21-14	MB8416-15 2k x 8bit Static CMOS RAM 150ns	(8L)
MDST-21-15	TC5533P-A 4k x 8bit Static RAM	(2C)
MDST-21-16	TC5533P-B 4k x 8bit Static RAM	(8C)
MDST-21-17	74LS00 Quad 2-input NAND LS TTL	(4C, 5C)
MDST-21-18	74LS04 Hex Inverters LS TTL	(1L, 2K, 4E, 5E)
MDST-21-19	74LS10 Tri 3-input NAND LS TTL	(4D)
MDST-21-20	74LS32 Hex 2-input AND LS TTL	(4A, 4B, 5A, 5B)
MDST-21-21	74LS74 Dual D-Flip Flops LS TTL	(5D)
MDST-21-22	74LS123 Dual Retriggable Single Shots LS TTL	(1J)
MDST-21-23	74LS138 Dual 2 to 4 Demultiplexers LS TTL	(1F, 6F)
MDST-21-24	74LS157 2 to 1 Data Selectors LS TTL	(5J, 5K, 6J, 6K)
MDST-21-25	74LS165 8bit Shift register LS TTL	(6M, 6N, 7P, 8P)
MDST-21-26	74LS240 Octal 3 State Bus. Inverters LS TTL	(7M, 7N, 8M, 8N)
MDST-21-27	74LS245 Octal 3 State Bus Transceivers LS TTL	(3K, 8K)
MDST-21-28	74LS373 Octal 3 State D-Latchs LS TTL	(2E, 8E)
MDST-21-29	74F04 Hex Inverters FAST TTL	(5H)
MDST-21-30	4066 Quad Analog Switches C-MOS	(2P, 4P)
MDST-21-31	LM324 Hex Operational Amplifiers	(1P, 3P)
MDST-21-32	LM3900 Hex Operational Amplifiers	(5N, 5R)
MDST-21-33	PST518A Reset IC	(1K)
MDST-21-34	2SA933 Silicon PNP Transistor	(Q3, Q7, Q13 ~ Q16, Q19 ~ Q22, Q26, Q27)
MDST-21-35	2SC1740 Silicon NPN Transistor	(Q1, Q2, Q4 ~ Q6, Q8, Q9, Q12, Q17, Q18, Q23 ~ Q25)
MDST-21-36	2SD592 Silicon NPN Transistor	(Q10, Q11)
MDST-21-37	1S953 Silicon Switching Diode	(D1, D2, D5, D7, D9 ~ D11)
MDST-21-38	W03B Silicon Diode	(D3, D4, D6, D8)
MDST-21-39	27 Ω 1/4W ± 5% Resistor	(R4)
MDST-21-40	33 Ω 1/4W ± 5% Resistor	(R22, R30, R36, R38, R45 R47, R72, R89)
MDST-21-41	100 Ω 1/4W ± 5% Resistor.	(R79, R80, R95. R97)
MDST-21-42	330 Ω 1/4W ± 5% Resistor	(R8, R20, R28, R29, R48, R49, R70, R71, R73, R91)
MDST-21-43	680 Ω 1/4W ± 5% Resistor	(R119)
MDST-21-44	1K Ω 1/4W ± 5% Resistor	(R31, R32, R92, R93)
MDST-21-45	1.2K Ω 1/4W ± 5% Resistor	(R37, R43)
MDST-21-46	2.2K Ω 1/4W ± 5% Resistor	(R6, R11, R12, R14, R15, R23, R24, R27, R39 ~ R42, R50, R51, R54, R55, R64, R65, R68, R69, R81, R87)
MDST-21-47	3.3K Ω 1/4W ± 5% Resistor	(R77)
MDST-21-48	4.7K Ω 1/4W ± 5% Resistor	(R13, R17, R25, R26, R52, R53, R66, R67)

Power Supply

Parts located on P.C. Board 3D-0173

PART No.	DESCRIPTION
MDSU-08-01	Transistor 2SC2562 or 2SC3239 (Q2)
MDSU-08-02	Transistor 2SC2749 or 2SC2938 (Q3)
MDSU-08-03	Photo Coupler* (S22MD1V) or (TLP541G) (PC1)
MDSU-08-04	Photo Coupler (PC614) (PC2)
MDSU-08-05	Hybrid IC (3D-3000) (IC1)
MDSU-08-06	IC (MPC78M24) (IC2)
MDSU-08-07	IC (TL431CLP) (IC3)
MDSU-08-08	IC (MPC78M12) (IC4)
MDSU-08-09	Transformer (3D-0173) (TR)
MDSU-08-10	Choke Coil SC2A (L1)
MDSU-08-11	Choke Coil SF-C27-00105-01 (L2)
MDSU-08-12	Fuse Holder 0G751-0062
MDSU-08-13	Fuse 3A 125V
MDSU-08-14	Resistor 5.1 OHM 5W (Cement) (R1)
MDSU-08-15	Resistor 30 OHM 5W (Cement) (R10)
MDSU-08-16	Resistor 100 OHM 5W (Cement) (R16)
MDSU-08-17	Resistor 510 OHM 5W (Cement) (R20)
MDSU-08-18	Resistor 20 OHM 5W (Cement) (R22)
MDSU-08-19	Resistor (carbon) 100 KOHM ½W (R3, 14)
MDSU-08-20	Resistor (carbon) 100 OHM ½W (R5)
MDSU-08-21	Resistor (carbon) 5.6 OHM ½W (R18, 19, 21)
MDSU-08-22	Resistor (carbon) 820 OHM ½W (R13)
MDSU-08-23	Resistor (carbon) 1 KOHM ¼W (R4, 6, 15)
MDSU-08-24	Resistor* (carbon) 47 KOHM or 10 KOHM ¼W (R7)
MDSU-08-25	Resistor (carbon) 27 KOHM ¼W (R8, 17)
MDSU-08-26	Resistor (carbon) 100 OHM ¼W (R9, 11, 12, 23, 24)
MDSU-08-27	Resistor (carbon) 1.8 KOHM ¼W (R25)
MDSU-08-28	Resistor (carbon) 2.7 KOHM ¼W (R26)
MDSU-08-29	Variable Resistor 50 KOHM (VR1)
MDSU-08-30	Variable Resistor 2 KOHM (VR2)
MDSU-08-31	Film Capacitor 0.047MF 630V (C1,4)
MDSU-08-32	Film Capacitor 0.22MF 250V (C10, 28, 29)
MDSU-08-33	Ceramic Capacitor 2200PF 2KV (C2, 3, 11, 14, 15, 18)
MDSU-08-34	Electro Capacitor 330MF 200V (C5)
MDSU-08-35	Electro Capacitor 100MF 50V (C16, 24)
MDSU-08-36	Electro Capacitor 4.7MF 50V (C7)
MDSU-08-37	Electro Capacitor 47MF 35V (C8, 17)
MDSU-08-38	Electro Capacitor 100MF 25V (C25)
MDSU-08-39	Electro Capacitor 3300MF 10V (C19, 20, 21, 22, 23)
MDSU-08-40	Mylar Capacitor 1000PF 50V (C12)
MDSU-08-41	Mylar Capacitor 0.01MF 50V (C6, 9, 27)
MDSU-08-42	Mylar Capacitor 0.1MF 50V (C13)

*Note: The 522MDIV uses R7 of 47 KOHM and the TLP541G uses R7 of 10 KOHM.

Power Supply (continued)

Parts located on P.C. Board 3D-0173

PART NO.	DESCRIPTION
MDSU-08-43	Mylar Capacitor 0.047MF 50V (C26)
MDSU-08-44	Bridge Rectifier S4V840 (D1)
MDSU-08-45	Diode 1S954 (D3)
MDSU-08-46	Diode 1S1835 (D6, 7, 10, 14)
MDSU-08-47	Diode 30DF2 (D11, 15)
MDSU-08-48	Diode CTB-33S (D12)
MDSU-08-49	Zener Diode RD 5.1EB3 (ZD1, 5.1 Volt)
MDSU-08-50	Thyristor 5P2M (Q1)
MDSU-08-51	Connector 1 (CON1)
MDSU-08-52	Connector 2 (CON2)

POWER SUPPLY P.C. BOARD 3D-1015S

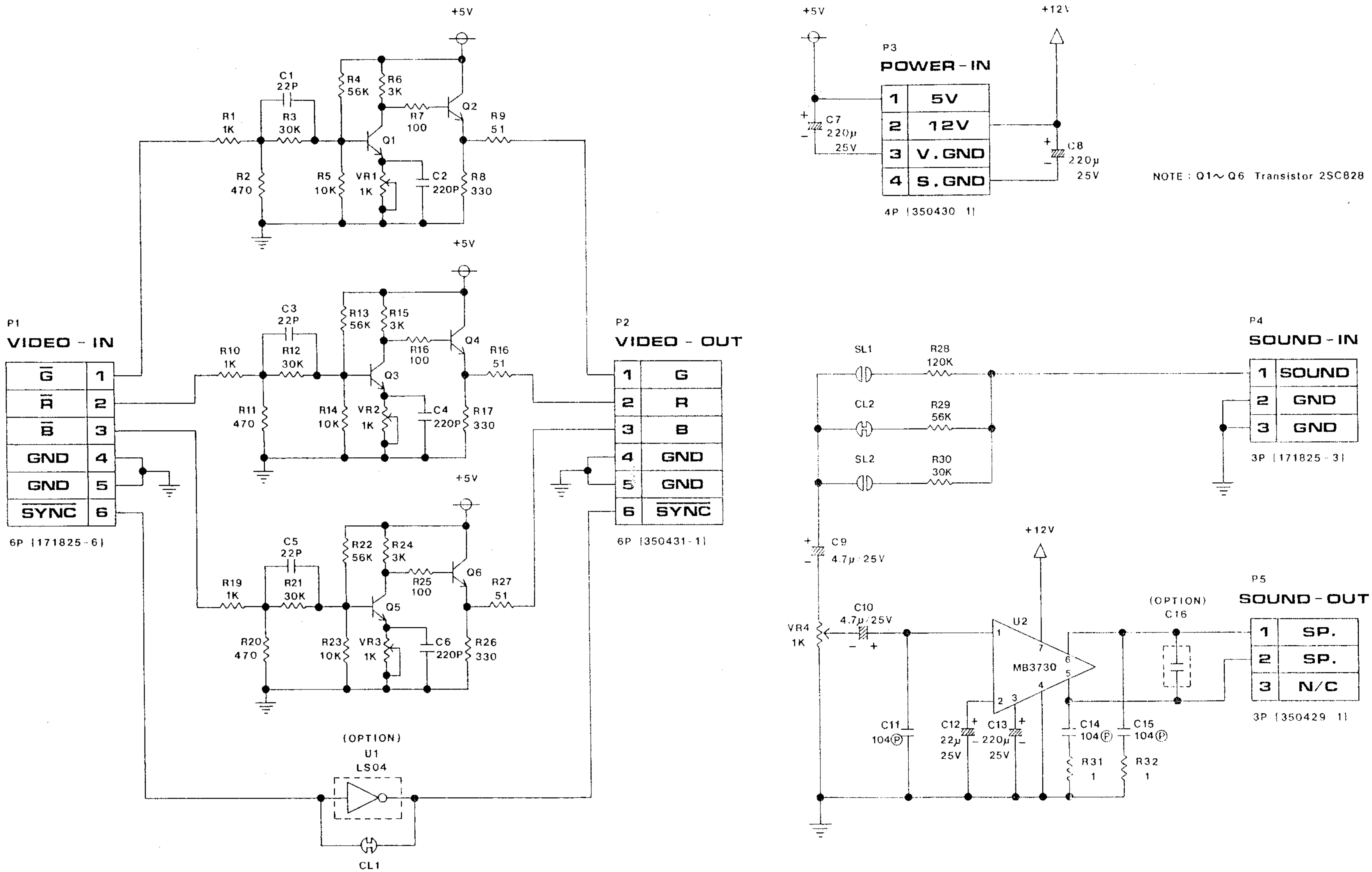
PART NO.	DESCRIPTION	LOCATION(s)
MGSP-08-01	Transistor 2SD571	TR2
MGSP-08-02	Transistor 2SC3236 or 2SC2553	TR1
MGSP-08-03	Photo Coupler PC 617	PC
MGSP-08-04	Diode CTU22S	D3
CHPU-88-19	Diode 1S1835 or 10DF6	D1, D2
CHPU-88-21	Zener Diode RD5.1EB2	ZD
CHPU-88-13	Voltage Regulator TL431CLP	IC
MGSP-08-05	Transformer T-12S(100V)	T
MGSP-08-06	Coil 172L2	L2
MDSU-08-10	Coil SC2A	L1
MGSP-08-07	Resistor 47K ohm 2W (cement)	R2
MDSU-08-20	Resistor 100 ohm 1/2W (carbon)	R3
TKG-08-39	Resistor 12 ohm 1/2W (carbon)	R12
MGSP-08-08	Resistor 150K ohm 1/2W (carbon)	R4
MGSP-08-09	Resistor 150 ohm 1/2W (carbon)	R5
MGSP-08-10	Resistor 1 ohm 1/2W (carbon)	R8
MGSP-08-11	Resistor 820 ohm 1/2W (carbon)	R17
MGSP-08-12	Resistor 2.2K ohm 1/4W (carbon)	R7
MDSU-08-20	Resistor 100 ohm 1/4W (carbon)	R9, 19
MDSU-08-23	Resistor 1K ohm 1/4W (carbon)	R6
MGSP-08-13	Resistor 3.3K ohm 1/4W (carbon)	R10
MGSP-08-14	Resistor 2.2K ohm 1/4W (carbon)	R11
MGSP-08-15	Resistor 330 ohm 1/4W (carbon)	R13, 14
MGSP-08-16	Resistor 18K ohm 1/4W (carbon)	R15
MGSP-08-17	Resistor 3.9K ohm 1/4W (carbon)	R18
MGSP-08-18	Variable Resistor 2K ohm	VR
MGSP-08-19	Film Capacitor 0.047 mF 630V	C7, 18
MGSP-08-20	Film Capacitor 470 pF 2KV	C12
MDSU-08-42	Mylar Capacitor 0.1 mF 50V	C9, 10
MDSU-08-43	Mylar Capacitor 0.047 mF 50V	C11
TKG-08-21	Ceramic Capacitor 470 pF 2KV	C8
MGSP-08-21	Electro Capacitor 1 mF 50V	C17
MGSP-08-22	Electro Capacitor 680 mF 16V	C13, 14, 15, 16
MGSP-08-23	PCB 3D-1015-3	
MGSP-08-24	4 Pin Amp Connector	

MGS AUDIO-VIDEO INTERFACE P. C. BOARD AV-01

PART NO.	DESCRIPTION	LOCATION(s)
TKG-57-03	TTL 74LS04 (not in Pac-Man* kit!)	U1
MDST-31-02	12W AUDIO AMP MB3730	U2
MDST-31-03	TRANSISTOR 2SC828P or Q	Q1,Q2,Q3,Q4,Q5,Q6
TKG-57-74	1K OHM Carbon Film Resistor ¼W 5%	R1,R10,R19
TKG-57-88	470 " " " "	R2,R11,R20
DJR-57-79	30K " " " "	R3,R12,R21,R30
MDST-31-04	56K " " " "	R4,R13,R22,R29
TKG-57-71	10K " " " "	R5,R14,R23
MDST-31-05	3K " " " "	R6,R15,R24
TKG-59-90	100 " " " "	R7,R16,R25
TKG-57-85	330 " " " "	R8,R17,R26
TKG-18-36	51 " " " "	R9,R18,R27
TPP2-07-60	120K " " " "	R28
MON-11-20	1 " " " "	R31,R32
TKG-57-56	22pf 50V Ceramic Capacitor	C1,C3,C5
TKG-56-55	220pf 50V Ceramic Capacitor	C2,C4,C6
MON-90-60	220μF 25V Electrolytic Capacitor	C7,C8,C13
MON-90-58	4.7μF 25V Electrolytic Capacitor	C9,C10
MDST-31-06	22μF 25V Electrolytic Capacitor	C12
TKG-56-58	0.1μF 50V Polyester Capacitor	C11,C14
MDST-31-07	1K OHM 1/5 WATT Variable Resistor	VR1,VR2,VR3
MDST-31-08	1K OHM 1/3 WATT Variable Resistor	VR4
MDST-31-10	Connector 6 Pin AMP EI Straight Type Video In	P1
MDST-31-11	Connector 3 Pin AMP EI Straight Type Audio In	P4
MDST-31-12	Connector 6 Pin AMP Mate-n-lock Type Video Out	P2
MDST-31-13	Connector 4 Pin AMP EI Straight Type Power In	P3
MDST-31-14	Connector 3 Pin AMP EI Straight Type Sound Out	P5
MDST-31-09	HEATSINK A and B	
MDST-31-15	BOLT W/WASHER M3 x 10 (4 REQUIRED)	
MDST-31-00	COMPLETE AV-01	

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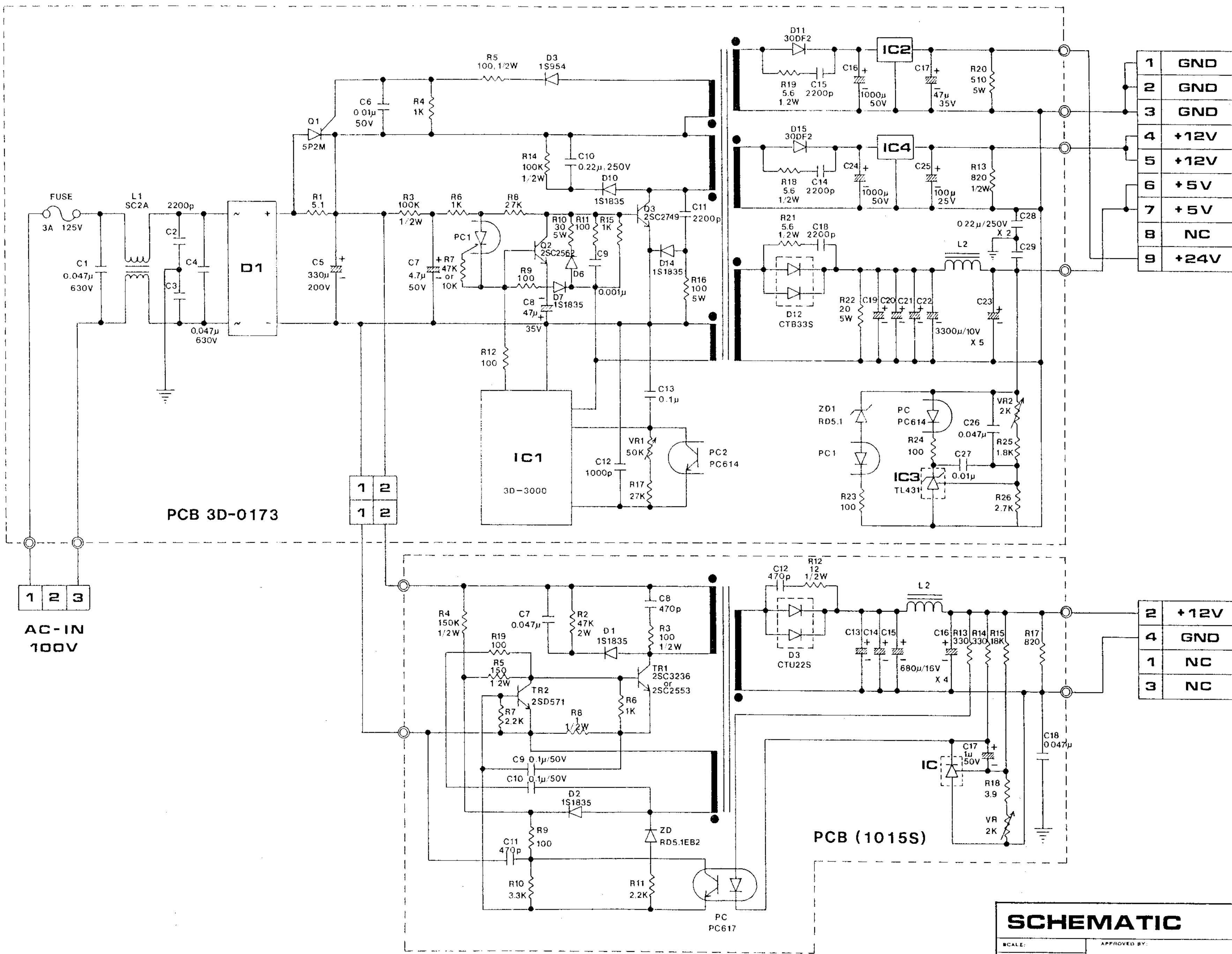
SCHEMATIC

SCALE:	APPROVED BY:	DRAWN BY ISHIZUKA
DATE: 7/20/85		REVISED

AV-01 PCB ASSY

DRAWING NUMBER

Nintendo of America Inc.



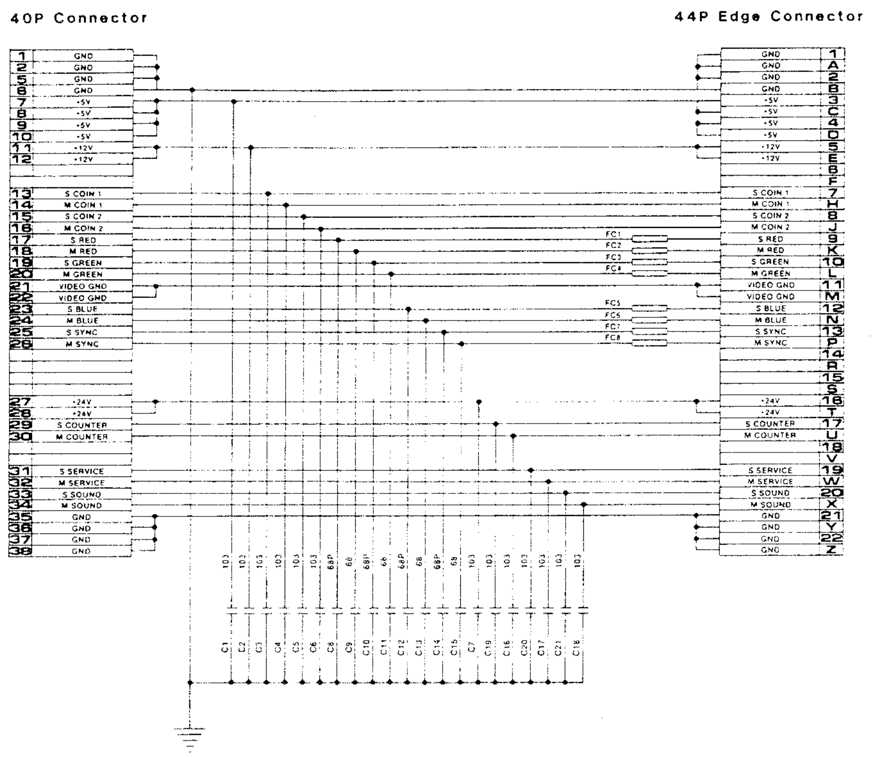
SCHEMATIC

SCALE:	APPROVED BY:	DRAWN BY ISHIZUKA
DATE: 7/20/85		REVISED

POWER SUPPLY ASSY (PP-1300A)

Nintendo of America Inc.

DRAWING NUMBER

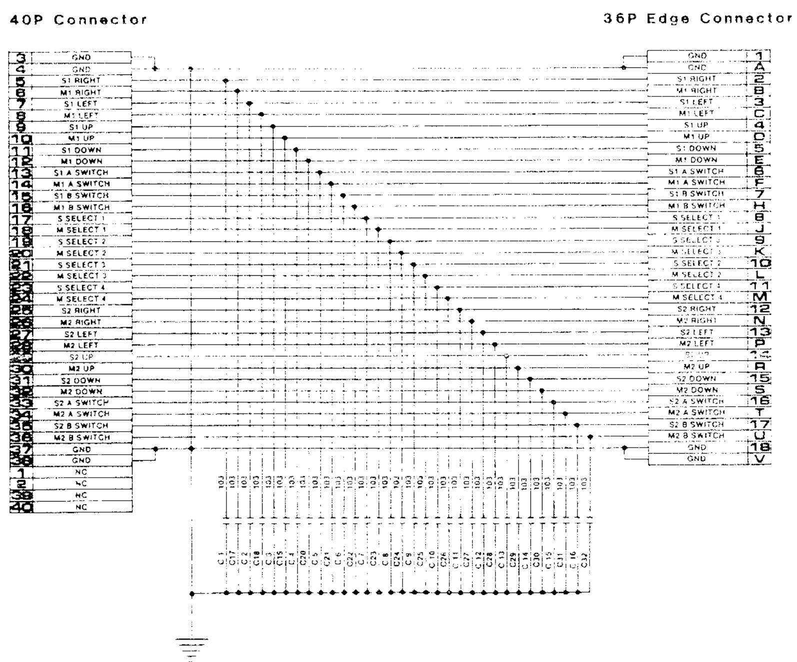


SCHEMATIC

DATE 3 10 84

062 44P FCC PC Board

Nintendo of America Inc



SCHEMATIC

DATE 3 10 84

062 36P FCC PC Board

Nintendo of America Inc.

WIRING DIAGRAM

SCALE:
DATE: 3 / 10 / 84
APPROVED BY:
DRAWN BY: M. ISHIZUKA
REVISED
DRAWING NUMBER

062 FCC PC Board

Nintendo of America Inc.

MDS PCB

062 44P FCC HARNESS

062 44P FCC PCB

44P Edge Harness Connector

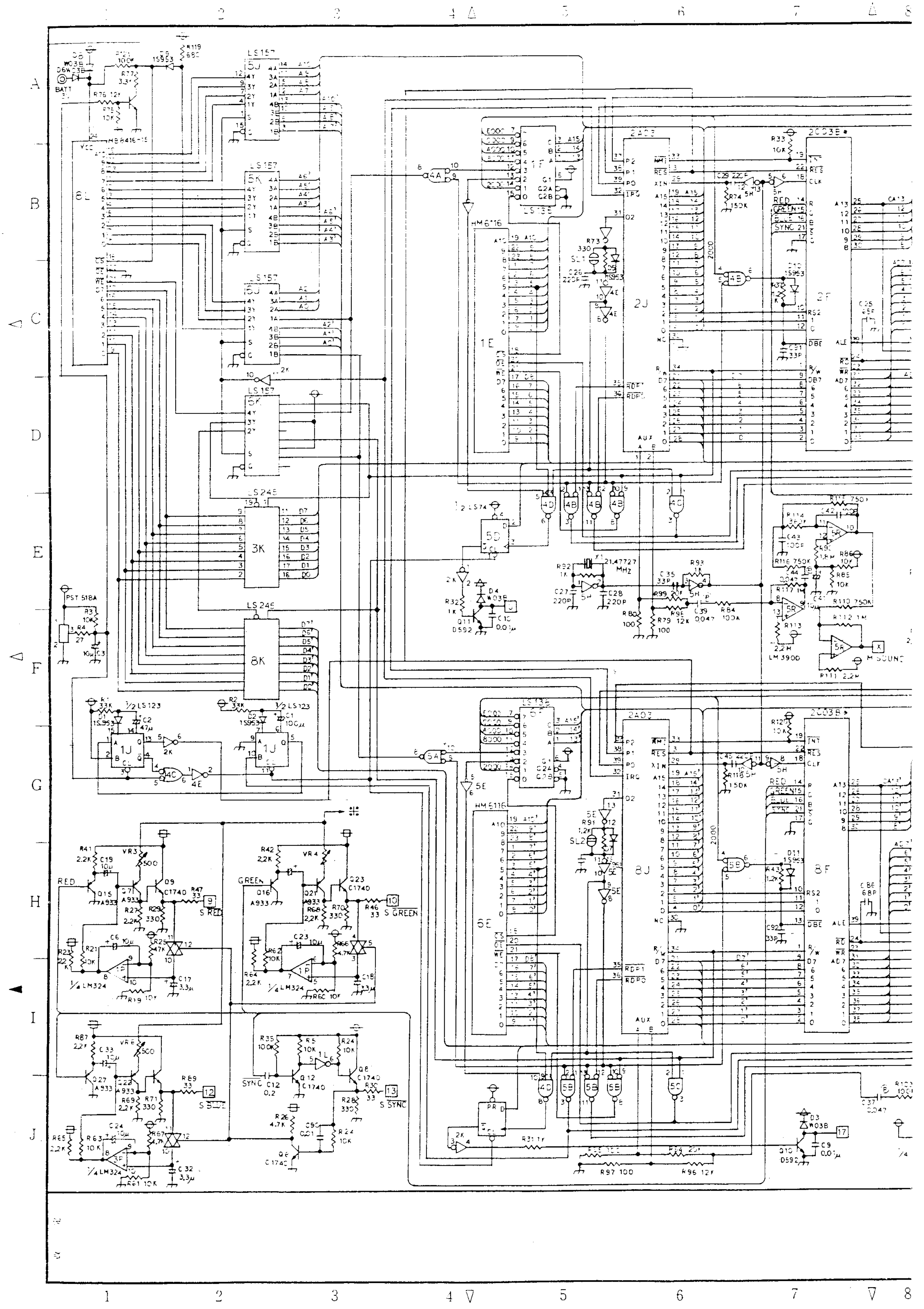
MDS PCB	Signal	Wire color	FCC PCB	FCC PCB	44P Edge
1	GND	BLACK	1	1	1
A	GND	BLACK	2	2	A
2	GND	BLACK	5	5	2
B	GND	BLACK	6	6	B
3	+5V	RED	7	7	3
C	+5V	RED	8	8	C
4	+5V	RED	9	9	4
D	+5V	RED	10	10	D
5	+12V	ORANGE	11	11	5
E	+12V	ORANGE	12	12	E
6					6
F					F
7	S COIN 1	BROWN	13	13	7
H	M COIN 1	BROWN	14	14	H
8	S COIN 2	RED	15	15	8
J	M COIN 2	RED	16	16	J
9	S RED	RED	17	17	9
K	M RED	RED	18	18	K
10	S GREEN	BROWN	19	19	10
L	M GREEN	BROWN	20	20	L
11	V. GND	YELLOW	21	21	11
M	V. GND	YELLOW	22	22	M
12	S BLUE	ORANGE	23	23	12
N	M BLUE	ORANGE	24	24	N
13	S SYNC	BLUE	25	25	13
P	M SYNC	BLUE	26	26	P
14					14
R					R
15					15
S					S
16	+24V	ORANGE	27	27	16
T	+24V	ORANGE	28	28	T
U	M COUNTER	BROWN	29	29	17
17	S COUNTER	BROWN	30	30	U
18					18
V					V
W	M SERVICE	YELLOW	31	31	19
19	S SERVICE	YELLOW	32	32	W
X	M SOUND		33	33	20
20	S SOUND		34	34	X
21	GND	BROWN	35	35	21
Y	GND	BROWN	36	36	Y
22	GND	BLACK	37	37	22
Z	GND	BLACK	38	38	Z

062 36P FCC HARNESS

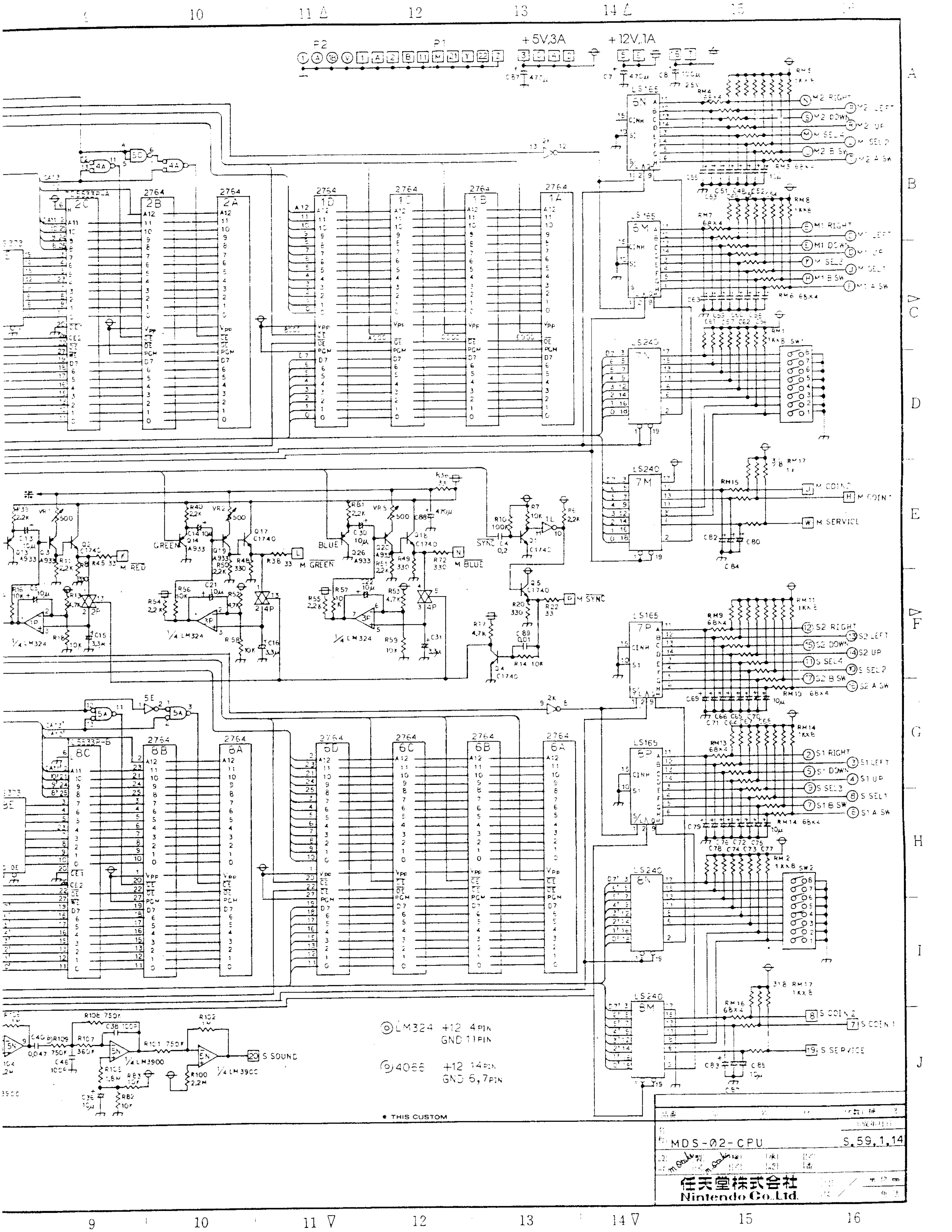
062 36P FCC PCB

36P Edge Harness Connector

MDS PCB	Signal	Wire color	FCC PCB	FCC PCB	36P Edge
1	GND	BLACK	3	3	1
A	GND	BLACK	4	4	A
2	S1 RIGHT	BROWN	5	5	2
B	M1 RIGHT	BROWN	6	6	B
3	S1 LEFT	RED	7	7	3
C	M1 LEFT	RED	8	8	C
4	S1 UP	ORANGE	9	9	4
D	M1 UP	ORANGE	10	10	D
5	S1 DOWN	YELLOW	11	11	5
E	M1 DOWN	YELLOW	12	12	E
6	S1 A SWITCH	YELLOW GREEN	13	13	6
F	M1 A SWITCH	YELLOW GREEN	14	14	F
7	S1 B SWITCH	LIGHT BLUE	15	15	7
H	M1 B SWITCH	LIGHT BLUE	16	16	H
8	S SELECT 1	BLUE	17	17	8
J	M SELECT 1	BLUE	18	18	J
9	S SELECT 2	PURPLE	19	19	9
K	M SELECT 2	PURPLE	20	20	K
10	S SELECT 3	GRAY	21	21	10
L	M SELECT 3	GRAY	22	22	L
11	S SELECT 4	WHITE	23	23	11
M	M SELECT 4	WHITE	24	24	M
12	S2 RIGHT	BROWN	25	25	12
N	M2 RIGHT	BROWN	26	26	N
13	S2 LEFT	RED	27	27	13
P	M2 LEFT	RED	28	28	P
14	S2 UP	ORANGE	29	29	14
R	M2 UP	ORANGE	30	30	R
15	S2 DOWN	YELLOW	31	31	15
S	M2 DOWN	YELLOW	32	32	S
16	S2 A SWITCH	GRAY	33	33	16
T	M2 A SWITCH	GRAY	34	34	T
17	S2 B SWITCH	WHITE	35	35	17
U	M2 B SWITCH	WHITE	36	36	U
18	GND	BLACK	37	37	18
V	GND	BLACK	38	38	V



LS157
5J
LS157
5K
LS157
5J
LS157
5K
LS245
3K
LS245
8K
8L
HM6116
1E
HM6116
6E
LS138
1F
LS138
6F
2A03
2J
2A03
8J
2C03B
2F
2C03B
8F
1/2 LS74
5D
1/2 LS123
1J
21.47727 MHz
LM3900
M SOUND
BATT
PST 518A
RED
GREEN
S RED
S GREEN
S BLUE
SYNC
S SYNC
1/4 LM324



+5V,3A
+12V,1A
P2
P1
LS165
5N
5M
7P
8P
LS240
7N
7M
8N
8M
2764
2C
2B
2A
1D
1C
1B
1A
8C
6B
6A
6D
6C
M2 RIGHT
M2 LEFT
M2 DOWN
M2 UP
M SEL 2
M2 B SW
M2 A SW
M1 RIGHT
M1 LEFT
M1 DOWN
M1 UP
M SEL 1
M1 B SW
M1 A SW
M COIN 2
M COIN 1
M SERVICE
M RED
M GREEN
M BLUE
M SYNC
S2 RIGHT
S2 LEFT
S2 DOWN
S2 UP
S SEL 4
S SEL 2
S2 B SW
S2 A SW
S1 RIGHT
S1 LEFT
S1 DOWN
S1 UP
S SEL 3
S SEL 1
S1 B SW
S1 A SW
S COIN 2
S COIN 1
S SERVICE
S SOUND
1/4 LM324
1/4 LM3900
LM324 +12 4PIN GND 11PIN
4066 +12 14PIN GND 6,7PIN
* THIS CUSTOM
MDS-02-CPU
S.59.1.14
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